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TECHNICAL MEMORANDUM
Utah Coal Regulatory Program

February 16, 2010

TO: Internal File

THRU: Daron Haddock, Team Lead

FROM: April A. Abate, Environmental Scientist II 2-24-10

RE: Skyline Winter Quarters Ventilation Facility, C/007/005, Task ID #3463

SUMMARY:

On January 11, 2010 the Division of Oil, Gas and Mining (the Division) received copies of an amendment to construct a ventilation shaft facility located within the Winter Quarter Canyon section of the Skyline mine permit. The ventilation pad will encompass 7.93 acres and will consist of an exhaust shaft, an escape shaft, and a sloped mine portal. The purpose of this project is to provide adequate ventilation for underground coal mining.

The following memo addresses the geology requirements as provided in the State of Utah R645-301.600 Coal Mining Rules and 30 CFR Section 75 – Mandatory Safety Standards for underground coal mines.

TECHNICAL ANALYSIS:

OPERATION PLAN

CASING AND SEALING OF UNDERGROUND OPENINGS

Regulatory Reference: 30 CFR Sec. 75.1711-1; R645-301-551, -301-631.

Analysis:

The proposed Winter Quarters ventilation facility is located in T13S R6E Section 1and will consist of an additional disturbance of 7.93 acres added to the permit area. A 20-foot diameter vertical shaft advanced to a depth of 300 feet and/or a decline-slope portal advanced to a total depth of approximately 900 feet where it will intersect with the mine workings, and an 8-inch diameter escape shaft are proposed for installation. The purpose of vent shaft and decline slope is to provide intake air for ventilation and an emergency escape route for mine personnel.

The Permittee states on page 2-21(b) and Section 4.9 of their amendment application that the reclamation plan for the shaft will be to seal and effectively cap, backfill, or otherwise properly manage as required by the Division. The plan indicates that the cap on the shaft will reportedly be a minimum 6-inch concrete or equivalent seal equipped with a vent pipe with a minimum of 2 inches in diameter and extend for a distance of 15 feet above the surface of the shaft.

The Permittee states on page 2-21(b) and Section 4.9 of their amendment application that the reclamation plan for the decline-slope portal will be to seal the entry from at least 25 feet inside the portal and backfill to the surface with solid, substantial, incombustible material such as concrete block, bricks or tile entry, or completely filled with incombustible material.

Reclamation drawings detailing the shaft and slope sealing were provided as Drawings 4.9-B, 4.9-C, 4.9-D.

Findings:

The CFR 30 regulations state that a shaft opening must be "effectively capped ***or*** filled". If the filling option were selected, then the entire shaft "is required to be backfilled and, for the first 50 feet from the bottom of the coalbed" (it should be noted that the well log indicated that the coal seam was encountered at approximately 279.95 feet below ground surface in the vicinity of the ventilation pad area). The Permittee appears to have selected the alternate option, which is to install a 6-inch cap with the required 2-inch sized vent pipe and the required 15-foot minimum distance above the surface of the shaft. However, Division guidelines 645-301.551 are more

stringent and mandate that casing and sealing of underground openings will be capped, sealed ***and*** backfilled or otherwise properly managed as required by the Division and consistent with MSHA and 30 CFR 75.1711. The Permittee has also reported that a gravity discharge of mine water from the underground opening is a possibility at reclamation.

Given that a mine water discharge is possible at reclamation, it is the opinion of the Division that the vertical shaft requires a stable, backfill material in addition to the 6-inch cap. This measure would provide the necessary stability to seal the shaft. Additionally, materials have the propensity to settle in underground openings, especially when compounded in with an underground source of water expected to discharge from the sealed openings. This mine water discharge has the potential to soften and undermine the backfill material, which can contribute to material settling. Please address the type of material that will be used to backfill the shaft and a plan to monitor and prevent any potential settling of the shaft.

SPOIL AND WASTE MATERIALS

Regulatory Reference: R645-301.624.220

Analysis:

Excess Spoil

The Permittee has indicated on page 3-31(a) of the application that during construction of the Winter Quarters Ventilation Pad (WQVF) all materials brought to the surface either by conventional sinking methods or raised bore construction will be stored underground, on the surface, contained within the pad, or shipped to the Waste Rock site.

Findings:

[R645-301.624.220]: Please provide additional information addressing whether or not chemical analysis for acid-toxic-forming, or alkalinity producing materials is necessary for this rock material produced from the shaft installation. The Division understands that prior baseline chemical analysis has been performed on rock strata from other areas of the mine. However, please provide more information or a justification on whether or not the geology in this area is variable enough to warrant any new/additional chemical analysis.

RECOMMENDATIONS:

The application cannot be approved until the following deficiencies are addressed:

[R645-301.631]: Given that a mine water discharge is possible at reclamation, it is the opinion of the Division that the vertical shaft requires a stable, backfill material in addition to the

6-inch cap. This measure would provide the necessary stability to seal the shaft. Additionally, materials have the propensity to settle in underground openings, especially when compounded in with an underground source of water expected to discharge from the sealed openings. This mine water discharge has the potential to soften and undermine the backfill material, which can contribute to material settling. Please address the type of material that will be used to backfill the shaft and a plan to monitor and prevent any potential settling of the shaft.

[R645-301.624.220]: Please provide additional information addressing whether or not chemical analysis for acid-toxic-forming, or alkalinity producing materials is necessary for the rock material produced from the installation of the shaft and decline slope and escape way boreholes. The Division understands that prior baseline chemical analysis has been performed on rock strata from other areas of the mine. However, please provide more information or a justification on whether or not the geology in this area is variable enough to warrant any new/additional chemical analysis.